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United States Plant Factory Market, By Facility Type (Greenhouses, Indoor Farms, Others {Shipping Containers, Building Based Plant Factory, etc.}), By Light (Artificial Light v/s Sunlight), By Growing System (Soil-Based, Non-Soil-Based, Hybrid), By Type (Fruits & Vegetables, Ornamental Plants & Flowers, Others {Plantation Crops, Forage Crops, etc.}), By Region, Competition Forecast & Opportunities, 2027

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Abstracts

United States Plant Factory Market stood at USD 1,423.04 million in 2021 and is expected to grow at an impressive CAGR of 10.42% during the forecast period. The numerous benefits associated with plant factory is revolutionizing the farming industry and transforming the conventional way of farming and crop production, simultaneously focusing more on the quality and quantity of the product. Plant factories offer a variety of advantages, including year-round crop production that ensures food security in places where weather conditions are unpredictable. Furthermore, because crops are cultivated in a controlled environment within a plant factory, the effects of outside weather are reduced, and thereby, dependency on natural weather lowers. The method of vertical farming inside the plant factory also aids the early and fresh development of the crops under the artificially controlled environment, after which new plants can be grown, and the cycle repeats, thus increasing crop productivity. Additionally, with a plant factory, crops can be cultivated close to where they can be freshly delivered, reducing their carbon footprint and wastage of products. There are undoubtedly further environmental advantages to using plant factories, such as reduced water use, little to no fertilizer use, and control over environmental conditions, which negates the need to employ chemical pesticides inside a plant factory. The adoption of this technology by key stakeholders

such as professional growers, supermarkets, restaurants, and hotels, among others, is made possible by all these benefits linked with plant factories, as well as a decrease in resource consumption by farmers or growers. The increasing benefits of plant factory and awareness of it, is driving the people to opt for plant factory produced food products and vegetables which will enhance the need for plant factory-based farming practices and is estimated to increase the demand for the United States Plant Factory Market in the upcoming years.

Increase in Demand for Food Safety & Security with increasing Population

The demand for food production has greatly expanded because of the constantly growing population in the United States. As a result of changes in climatic conditions, pest or insect attacks, loss of soil fertility and quality, among other things, the fruits and vegetables, crops, ornamental flowers & plants produced through conventional agricultural practices are vulnerable to destruction or reduction in the yield. Food of the highest quality can be grown and harvested all year long in plant factories. Additionally, compared to food produced using traditional farming methods, food produced by plant factories is safer to eat because it is free of risks like pathogens, contamination from outside sources like animal waste, and contaminated runoff and pesticides.

In terms of food safety, non-soil-based growth techniques like hydroponics and aeroponics have also sparked a revolution. Frequently, pathogens are discovered in conventional agricultural practice (or soil-grown) crops. Hydroponic farming has the potential to drastically reduce the number of individuals who suffer a foodborne illness each year by eliminating these bacteria from the growing process. It is less likely that plants in vertical farming will become contaminated by the water by using a hydroponic system to irrigate them. Purified water is infused with nutrients before being applied to the hydroponic system's plant roots. There are few chances of contamination from soil-borne diseases because no soil is used. Furthermore, there is no threat from contaminated runoff from nearby sources of chemical or biological pollution.

Deterioration of Agricultural Land

The lack of arable land is one of the major issues the agriculture sector is currently facing. Each year, lands are put under agriculture. Still, much of it is also removed from cultivation to make way for urbanization, making it harder to supply the growing human population's needs for food. The increasing human population and the small increase in arable land has even resulted in a reduction in arable land per capita. Agrochemical use, overgrazing, floods, and deforestation, among other factors, have all contributed to

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an increase in soil erosion, which has resulted in a lot of land degradation and barren areas unsuitable for cultivating crops. The ongoing decline in the amount of farmland available per person has brought the necessity to use farming techniques that can boost productivity and yield. The desire to boost the yield from the available land or use alternative farming methods that can help increase productivity by utilizing little or no land or in entirely artificial conditions has resulted from this. The development and use of the plant factory to utilize minimum space and fast production of high yield has paved the way to replace the traditional way of farming.

Incorporation of Technological Advancement Inside Plant Factories

Plant factories use more automation and technology to optimize land use, offering solutions to meet future food production needs. The technological use inside the plant factory lowers the dependency on humans for continuous monitoring. Technology like the cooling technique for plant factories utilizes cooling pads and fan systems for climate control. The primary benefit of this system is its excellent cooling effectiveness without the need to spray water inside the plant factory and maintain humidity. The temperature inside the indoor farms can be controlled and maintained. The plant factories with artificial lighting also help in regulating the exposure of lights to the plants as well, which especially initiates the growth of plants when grown in groups that require different wavelengths of light to grow. Self-sufficient water systems are also used for the regular supply of water inside the plant factory; thus, the water can subsequently be reused via instant automatic irrigation systems. Although the installation cost is higher, the maintenance cost is considerably low. Thus, it becomes a cost-efficient practice for crop production and with good output. For instance, as part of its efforts to reinvent farming, the Plenty agricultural technology business, based in San Francisco, has set up an advanced climate-controlled vertical farming arrangement. These upright farms can grow 720 acres' worth of fruit and vegetable crops on only 2 acres of farmland due to AI-powered robots regulating irrigation, temperature, and lighting. Additionally, the facility uses LED panels to simulate sunlight, providing more favourable conditions for growth all the time.

Low Transport and Labor Cost

The plant factory occupies less space when practiced with vertical farming and can be constructed in the areas where the customer lives nearby, thus reducing transportation costs, carbon-dioxide emissions, and the constant need for refrigerating produce for days. As the practice of vertical farming is done in a completely automated indoor growing system, the need for extensive labor to get consistent annual production

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becomes low. This process only requires individuals/laborers with low skills with technology replacing human labor. The plant factory operates with a good output providing more monetary benefits to the operating companies and replacing traditionally grown foods with the organic ones.

Market Segmentation

The United States Plant Factory Market is segmented based on Facility Type, Light, Growing System, Type, Region, and Company. Based on the Facility Type, the market can be categorized into Greenhouses, Indoor Farms and Other {Shipping Containers, Building Based Plant Factory, etc.}. Based on Light source the market is bifurcated into Artificial Light and Sunlight. Based on the growing system, the market is segmented into Soil-Based, Non-Soil-Based, Hybrid. Based on Type the market is divided among Fruits & Vegetables, Ornamental Plants & Flowers, Others {Plantation Crops, Forage Crops, etc.}). Based on the type of Fruits & Vegetables, the market is further sub segmented into Tomatoes, Lettuce, Green Leafy Vegetables (excluding Lettuce), Cucumber, Bell Peppers, Strawberries, Others {Herbs, etc.}. Based on the type of Lettuce under the Fruits & Vegetable category, the market is segmented into Lettuce Head, Romaine, Leaf.

Company Profiles

Gotham Greens Farms LLC, Bowery Farming Inc., Freight Farms, Plenty Unlimited Inc., AeroFarms, LLC, BrightFarms Inc., Iron Ox, Inc., AppHarvest, Inc., Vertical Harvest Farms, Dream Harvesting Farming Company LLC.

Report Scope:

In this report, United States Plant Factory Market has been segmented into following categories, in addition to the industry trends which have also been detailed below:

United States Plant Factory Market, By Facility Type:

Greenhouses

Indoor Farms

Others (Shipping Containers, Building Based Plant Factory, etc.)

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United States Plant Factory Market, By Light:

Artificial Light

Sunlight

United States Plant Factory Market, By Growing System:

Soil-Based

Non-Soil-Based

Hybrid

United States Plant Factory Market, By Type:

Fruits & Vegetables

Ornamental Plants & Flowers

Others (Plantation Crops, Forage Crops, etc.)

By Type, By Fruits & Vegetables:

Tomatoes

Lettuce

Green Leafy Vegetables (excluding Lettuce)

Cucumber

Bell Peppers

Strawberries

Others {Herbs, etc.}

By Fruits & Vegetables, Type, By Lettuce:

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Head

Romaine

Leaf

United States Plant Factory Market, By Region:

Northeast

Midwest

South

West

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in United States Plant Factory Market.

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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(Note: The companies list can be customized based on the client requirements.

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